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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/921,400	08/02/2001	G. Michael Uhler	MIPS:0109.00US	6058

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EXAMINER

COLEMAN, ERIC

ART UNIT	PAPER NUMBER
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2183

DATE MAILED: 06/16/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/921,400

Applicant(s)

UHLER, G. MICHAEL

Examiner

Eric Coleman

Art Unit

2183

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneda (patent No. 4,400,769) in view of Bhandai (patent No. 6,532,533).

3. Kaneda taught the invention substantially as claimed including a data processing ("DP") system comprising: Means method for receiving a privileged instruction and modifying the control register (PSW) upon execution of the privileged instruction (e.g., see col. 3, lines 3-56) including a mask against interrupts (e.g., see col. 5, line 63-col. 6, line 32). Kaneda taught plural instructions some of which were privileged but did not specify (claims 1,10,16,18,20,23) the fields of the instruction. Opcode and operand fields would have been required to indicate the type of instruction and at least the memory locations accessed by the instructions. On the other hand, Bhandai taught read or write request or instructions that comprised mask field, register field and address fields (e.g., see col. 4, lines 46-65).

4. Kaneda did not expressly detail (claim 1,12,18,20) atomic operations. Bhandai also taught (claims 1,3) that these read and write instructions were atomic without need to move the register contents to a general purpose register for a read modify write operation (e.g., see col. 1, line 57-col. 2, line 35).

5. It would have been obvious to one of ordinary skill in the DP art to combine the teachings of Kaneda and Bhandai. Both were directed toward the problems of access to system registers and the use of masks for access. One of ordinary skill would have been motivated to incorporate the teachings of Bhandai because the specific teachings of the manner to utilize the mask for accessing the portions of registers would have provided the combined system with an efficient manner to access specific data portions in the registers need for processing and the streamlined access for read modify write using the mask registers would have provided faster access to the data.

6. As per claim 2,21 Kaneda taught a request for privileged resources using a privileged instruction could only be performed by an operating system, and the request for access to privileged resources by non-privileged program that causes a privilege exception (e.g., see col. 3, lines 3-16); and access to the control register requires a privileged access instruction (e.g., see col. 6, line 64-col. 7, line 27). Consequently, it would have been obvious to one of ordinary skill that in the Kaneda system the control register was not accessible when the microprocessor was executing unprivileged instructions.

7. As per claims 4,6, Kaneda taught that the privileged instruction were performed by emulation upon receiving an interrupt (e.g., see col. 3, lines 17-68). As per claims 5,17 Bhandai taught setting bits in the register using the mask register (e.g., see col. 5, line 53-col. 6, line 12). One of ordinary skill would have been motivated to utilize this procedure on the privileged registers that were masked in the Kaneda teachings at least to provide a flexible means to modify the registers as needed for the system to process

the programs operating on the system. Also, (claims 5,7,12) since the system clearly would have required resetting of certain bits then one of ordinary skill would have been motivated to reset the bits in a manner similar to the masking for setting the bits. Also, as to claim 9, this would have required a bit for indicating whether a mask register bit was set or cleared (e.g., see col. 9, line 45-col. 10, line 59 of Kaneda).

8. As per claim 8, Bhandai, taught the second register comprised general purpose registers (e.g., see col. 4, lines 26-65).

9. As per claims 11,12,13,14,22 Kaneda taught (e.g., see col. 9, lines 17-68) a mask that indicated interrupts and setting or clearing the bits indicated whether the temporarily disabling or enabling of the corresponding interrupt. As per claim 15,19 Kaneda taught the privileged control register comprised a status register including interrupt mask bits (e.g., see col. 9, lines 17-68 and col. 8, lines 27-62).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kahle (patent No. 5,764,969) disclosed a system for enhanced management operation utilizing intermixed user level and supervisory level instructions with partial concept synchronization (e.g., see abstract).

Karger (patent No. 5,210,874) disclosed a system with cross-domain call (e.g., see abstract).

Goff (patent No. 6,666,383) disclosed selective access to multiple registers having a common name (e.g., see abstract).

Sholander (patent No. 5,655,135) disclosed a system for write protecting a bit that is hardware modified during a read-modify-write cycle (e.g. see abstract).

Hayden (patent No. 5,345,567) disclosed a system for modifying program status word system mask, system access key and address space code with overlap enabled (e.g., see abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Coleman whose telephone number is (703) 305-9674. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (703) 305-9712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EC


